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## **Matching stratified plankton blooms with satellite data estimated chl-a**

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Feasibility of spaceborne chl-a monitoring in inland waters has been demonstrated for a variety of water types. Medium Resolution Spectrometers (e.g. MERIS, MODIS) are the preferred instruments thereby, and neural network inversion algorithms as well as red-NIR band ratios are the preferred methods. However, the relatively low spatial resolution and lack of vertical representation are popular concerns when it comes to operational use of remotely sensed water constituents.

In summer 2011, fluorometric chl-a profiles and several other water quality parameters have been measured at very high temporal resolution in Greifensee, one of the small eutrophic lakes in Northern perialpine Switzerland. The resulting dataset covers more than two months, for which 16 cloud-free MERIS images are available. These MERIS data are processed with several neural network algorithms for comparison of retrieved chl-a and in situ measurements. Preliminary results show that MERIS may not resolve any spatial variations in such small lakes, but can indeed sense temporal variations. Special attention is given to vertical weighting of the in situ chl-a profiles for comparison with the remotely sensed concentrations, since blooms during the observation period occur at different depths.

This work highlights the potential of both sentinel 2 and 3 with regard to eutrophication in small but strongly affected lakes. We propose a synoptic monitoring approach of remotely and in situ measured data as well as 3D models for the future. Such combined efforts aim at the enhancement of EO-based GMES products for inland waters as currently developed within the Freshmon project.